

Existing Regulations/Regulatory Actions Affecting the Wood Products Industry:

- ▶ No New Source Performance Standards (NSPS)
- ▶ OECA Enforcement Actions (1990's)
 - Focus is mainly on reducing dryer and press vent emissions
 - Primary pollutants targeted for reduction are particulate matter (PM) and Volatile organic compounds (VOC)
 - Primary add-on control devices being used are regenerative thermal oxidizers (RTO's) (many of which are preceded by wet electrostatic precipitators [WESP's])
- ▶ New Source Review/Prevention of Significant Air Quality Deterioration (NSR/PSD) Program
 - New major sources and existing sources that make major modifications must install best available control technology (BACT), which is determined on a case-by-case basis
 - Primary pollutants targeted for reductions are PM and VOC's
 - NO_x emissions can be a concern for incineration-based control technologies

Existing Regulations/Regulatory Actions Affecting the Wood Products Industry, continued:

- ▶ Maximum Achievable Control Technology (MACT) Standards
 - Requires reductions in hazardous air pollutant (HAP) emissions from both new and existing major sources
 - MACT rule for plywood and composite wood products industry is currently under development
 - MACT standards scheduled to be proposed in October of 2000 and promulgated by December of 2001

Types of Plants Covered by Plywood and Composite Wood Products MACT Standards:

Industry Sector ^a	Estimated No. Plants Nationwide ^b
Plywood products (wood veneers glued together to form layered panel)	
Softwood plywood and/or veneer	103
Hardwood plywood and/or veneer	163
Reconstituted wood products (wood particles and resins pressed into a board)	
Particleboard (including molded particleboard and particleboard made from agricultural fibers)	53
MDF	22
Hardboard	19
Fiberboard	8
OSB	37
Engineered wood products	
Glue-laminated beams	15
LVL	15
LSL or PSL	4
I-joists	19
Total	458

^aLumber kilns are another sector of the industry; the nationwide number of lumber kilns is estimated to be as high as 3,000. However, information is only available on the approximately 350 lumber kilns that are colocated with plants that fall into the industry sectors shown above.

^b Some plants make multiple products. These plants are counted for each of the products they manufacture (e.g., a plant making both particleboard and softwood plywood is counted once under particleboard and once under softwood plywood and/or veneer).

Emission Sources:

- ▶ Dryers
 - wood particle dryers
 - veneer dryers
- ▶ Presses
 - board presses
 - plywood presses
- ▶ Digesters/Refiners
(only the steam-pressurized digester/refiners are a significant source of emissions)
- ▶ Board coolers
(located after the presses)
- ▶ Other emission sources
(blenders, formers, lumber kilns, wastewater, storage tanks, etc.)

Primary HAP's Emitted:

- ▶ Formaldehyde
- ▶ Methanol
- ▶ Acetaldehyde
- ▶ Phenol
- ▶ Others (acrolein, propionaldehyde, xylenes, etc.)

Other Pollutants:

- ▶ Particulates (primarily wood and condensible organics)
- ▶ VOC (a significant portion of the gaseous pollutants emitted are non-HAP's [e.g., alpha and beta pinenes, terpenes, etc.] so total VOC emissions are greater than HAP emissions)
- ▶ For direct-fired units: CO, CO₂ and NO_x

Air Pollution Control Devices in Use at Plywood and Composite Wood Products Plants:

Devices Installed Primarily for VOC Control:

- ▶ Oxidizers
 - thermal oxidizers
 - RTO's
 - regenerative catalytic oxidizers (RCO's)
- ▶ Biofilters (installed for control of water-soluble VOC's)

Devices Installed Primarily for PM Control:

- ▶ Wet ESP's (installed for control of PM and "blue haze" and often precede oxidizers)
- ▶ Wet Scrubbers
- ▶ Dry scrubbers
 - multiclones
 - baghouses

Issues Impacting MACT Standards that Overlap with ETV Wood Products Program:

- ▶ What VOC removal efficiencies can non-incineration-based control devices such as wet ESP's, biofilters, and wet scrubbers achieve?
- ▶ What HAP removal efficiencies can non-incineration-based control devices achieve?
- ▶ What VOC destruction efficiency can oxidizers achieve?
- ▶ What HAP destruction efficiency can oxidizers achieve?
- ▶ Which factors most affect these control efficiencies?
- ▶ What are the maintenance requirements and total annual "down time" for oxidizers and wet ESP's?